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| 09/580,559 | 05/30/2000 | Motoo Nishihara | Q59423 | 1590 |

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| EXAMINER | |
|---|---|
| YAO, KWANG BIN | |
| ART UNIT | PAPER NUMBER |
| 2667 | |

DATE MAILED: 02/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/580,559 | NISHIHARA, MOTOO | |
| | Examiner | Art Unit | |
| | Kwang B. Yao | 2667 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *26 October 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *16* is/are allowed.

6)☒ Claim(s) *1-15 and 17-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/26/04 has been entered.

### *Response to Arguments*

2. Applicant's arguments with respect to claims 1-25 have been considered but are moot in view of the new ground(s) of rejection.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-3, 5-9, 12, 15, 17, 18-22, 23, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vargo et al. (US 6,477,164) in view of Kasslin et al. (US 6,075,789).

Vargo et al. discloses a system for real-time data and voice transmission comprising the following features: regarding claim 1, causing a transmission-source access network (Fig. 1,

Gateway 114) to generate at least one packet to be transferred to a destination access network (Fig. 1, Gateway 116), and to transmit the at least one packet to a transmission-source packet transfer apparatus (Fig. 1, Transmux 124) connected to the transmission-source access network (Fig. 1, Gateway 114); causing the transmission-source packet transfer apparatus (Fig. 1, Transmux 124) to convert the at least one packet into a superpacket (Fig. 4) having a length n times (n is an integer of not less than 2) larger than a fixed-length cell, the superpacket (Fig. 4) serving as a switching unit of relay means arranged on a network, and to send the superpacket (Fig. 4) to the network (Fig. 1, Internet network 132); causing the network (Fig. 1, Internet network 132) to relay the superpacket (Fig. 4) using the relay means, and to transfer the superpacket (Fig. 4) to a destination packet transfer apparatus (Fig. 1, Transmux 126) connected to the destination access network (Fig. 1, Gateway 116); and causing the destination packet transfer apparatus (Fig. 1, Transmux 126) to reassemble the at least one packet generated by the transmission-source access network (Fig. 1, Gateway 114) on the basis of the superpacket (Fig. 4) transferred from the network (Fig. 1, Internet network 132), and to send the at least one packet to the destination access network (Fig. 1, Gateway 116); regarding claim 2, causing the transmission-source packet transfer apparatus (Fig. 1, Transmux 124) to individually store the transmitted packets by their respective destination transfer apparatuses, forming the superpacket (Fig. 4) for each of the destination packet transfer apparatus (Fig. 1, Transmux 126)es, and sending the superpacket (Fig. 4) to the network (Fig. 1, Internet network 132), and causing the destination packet transfer apparatus (Fig. 1, Transmux 126) to individually store the superpackets (Fig. 4) transferred from the network (Fig. 1, Internet network 132) by their respective transmission-source packet transfer apparatus (Fig. 1, Transmux 124)es and

reassembling the packet for each of the transmission-source packet transfer apparatus (Fig. 1, Transmux 124)es; regarding claim 3, causing the transmission-source packet transfer apparatus (Fig. 1, Transmux 124) to detect for each of the destination packet transfer apparatus (Fig. 1, Transmux 126) that the superpacket (Fig. 4) is not formed for a first time-out time (column 6, lines 35-52), and if a packet is stored in association with the destination packet transfer apparatus (Fig. 1, Transmux 126) and the superpacket (Fig. 4) is not formed for the first time-out time (column 6, lines 35-52), causing the transmission-source packet transfer apparatus (Fig. 1, Transmux 124) to form the superpacket (Fig. 4) from the packet and to send the superpacket (Fig. 4) to the network (Fig. 1, Internet network 132); regarding claim 5, when the packet transmitted from the transmission-source access network (Fig. 1, Gateway 114) crosses a plurality of superpackets (Fig. 4), the transmission-source packet transfer apparatus (Fig. 1, Transmux 124) to divisionally sends the packet to the network (Fig. 1, Internet network 132) using the plurality of superpackets (Fig. 4), and when the packet is transferred from the network (Fig. 1, Internet network 132) in the plurality of superpackets (Fig. 4), the destination packet transfer apparatus (Fig. 1, Transmux 126) reassembles the transmitted packet by connecting the plurality of superpackets (Fig. 4) and then sending the reassembled packet to the destination access network (Fig. 1, Gateway 116); regarding claim 6, causing the transmission-source packet transfer apparatus (Fig. 1, Transmux 124) to store (Fig. 6, packet input buffer 602), as a transmission-source address and destination address in a header of the superpacket (Fig. 4), unique network addresses defined only in the network (Fig. 1, Internet network 132) and assigned to the transmission-source packet transfer apparatus (Fig. 1, Transmux 124) and the destination packet transfer apparatus (Fig. 1, Transmux 126), respectively, and send the

superpacket (Fig. 4) to the network (Fig. 1, Internet network 132), and causing each relay means in the network (Fig. 1, Internet network 132) to look up (Fig. 6, Hashing Table 606 and Fig. 7) the header of the transferred superpacket (Fig. 4) to specify a relay destination of the superpacket (Fig. 4) in accordance with the network (Fig. 1, Internet network 132) address assigned to the destination packet transfer apparatus (Fig. 1, Transmux 126) and transfer the superpacket (Fig. 4) to the destination packet transfer apparatus (Fig. 1, Transmux 126); regarding claim 7, forming means (Fig. 6, routing engine 604 and Fig. 8) for converting the at least one packet into a superpacket (Fig. 4), the superpacket (Fig. 4) has a length n times (n is an integer of not less than 2) larger than a fixed-length cell, the superpacket (Fig. 4) serving as a switching unit of the relay means, and for sending the superpacket (Fig. 4) to the network (Fig. 1, Internet network 132); and reassembler means (Fig. 9, steps 916, 918) for extracting the at least one packet from the superpacket (Fig. 4) sent from the network (Fig. 1, Internet network 132) and sending the at least one packet to the access network; regarding claim 8, wherein the forming means (Fig. 6, routing engine 604 and Fig. 8) comprises first storage means (Fig. 6, packet input buffer 602) having queues for storing the packets, wherein the packets are stored by their respective packet transfer destination apparatus in the queues, and wherein the forming means (Fig. 6, routing engine 604 and Fig. 8) detects the number of the stored packets, and when the number of stored packets is sufficient for forming the superpacket (Fig. 4), the forming means (Fig. 6, routing engine 604 and Fig. 8) extracts the packets from the queue to form the superpacket (Fig. 4); regarding claim 9, for each of the queues of the first storage means (Fig. 6, packet input buffer 602), first time count means for starting time counting every time the superpacket (Fig. 4) is formed and detecting an elapse of a first time-out time (column 6, lines 35-52) from the time count start time,

and when the elapse of the first time-out time (column 6, lines 35-52) is detected, the forming means (Fig. 6, routing engine 604 and Fig. 8) forms, the superpacket (Fig. 4) from the packets stored in the queue; regarding claim 12, wherein the reassembler means (Fig. 9, steps 916, 918) comprises second storage means (Fig. 6, packet input buffer 602) having queues for storing the superpackets (Fig. 4), wherein the superpackets (Fig. 4) are stored by their respective packet transfer source apparatus in the queue (column 6, lines 35-52), and wherein the reassembler means (Fig. 9, steps 916, 918) reassembles the packet from the stored superpacket (Fig. 4); regarding claim 15, wherein the forming means (Fig. 6, routing engine 604 and Fig. 8) detects that the packet crosses a plurality of superpackets (Fig. 4) and divisionally stores the packet in the plurality of superpackets (Fig. 4), and the reassembler means (Fig. 9, steps 916, 918) detects that the packet on the superpacket (Fig. 4) crosses a plurality of superpacket (Fig. 4) and links packet data divisionally stored in the plurality of superpackets (Fig. 4) to reassemble the original packet generated by the transmission-source access network (Fig. 1, Gateway 114); regarding claim 17, wherein a header of the superpacket (Fig. 4) has the same format as that of a header of the packet; regarding claim 18, an access network for transmitting/receiving a packet; a packet transfer apparatus for transmitting/receiving the packet; relay means for relaying the packet; and a network serving as a backbone for transferring a superpacket (Fig. 4) having a length n times (n is an integer of not less than 2) larger than a fixed-length cell, the superpacket (Fig. 4) serving as a switching unit of the relay means, wherein the packet transfer apparatus converts the packet into the superpacket (Fig. 4) and visa versa, and further transfers the packet transmitted from a transmission-source access network (Fig. 1, Gateway 114) to a destination access network (Fig. 1, Gateway 116) in a form of the superpacket (Fig. 4) through the relay means in the network

(Fig. 1, Internet network 132); regarding claim 19, wherein the packet transfer apparatus and the relay means are assigned unique network addresses defined only in the network (Fig. 1, Internet network 132), and the network (Fig. 1, Internet network 132) addresses of packet transfer apparatuses are stored in a header of the superpacket (Fig. 4) as a transmission-source address and a destination address; regarding claim 20, wherein for superpackets (Fig. 4) having the same destination packet transfer apparatus (Fig. 1, Transmux 126), different network addresses are assigned to destination addresses in headers of the superpackets (Fig. 4) in accordance with a type of destination access network (Fig. 1, Gateway 116) connected to the destination packet transfer apparatus (Fig. 1, Transmux 126); regarding claim 21, a route search table (Fig. 7) which stores a number of entries, the number of entries at least corresponding to a number of the packet transfer apparatuses and relay means, each of the entries connects a destination address in a header of the superpacket (Fig. 4) to a relay destination of the superpacket (Fig. 4), and route search means for searching the route search table (Fig. 7) on the basis of the destination address in the header of the superpacket (Fig. 4) to find the relay destination of the superpacket (Fig. 4); regarding claim 22, wherein for same network flow, the network (Fig. 1, Internet network 132) flow comprises traffic through the relay means in the network (Fig. 1, Internet network 132), the traffic is transmitted from the packet transfer apparatus connected to the transmission-source access network (Fig. 1, Gateway 114), to the packet transfer apparatus connected to the destination access network (Fig. 1, Gateway 116), superpackets (Fig. 4) corresponding to the same network flow have the same header. See column 3-9.

Vargo et al. does not disclose the following features: regarding claim 1, wherein when said at least one packet cannot fit the superpacket, the forming means places a portion of the

packet into the superpacket and another portion of the packet into another superpacket; regarding claim 7, wherein when said at least one packet cannot fit the superpacket, the forming means places a portion of the packet into the superpacket and another portion of the packet into another superpacket; regarding claim 18, wherein when the packet cannot fit the superpacket, the forming means places a portion of the packet into the superpacket and another portion of the packet into another superpacket; regarding claim 23, wherein said superpacket is assembled from a plurality of packets and said plurality of packets are of variable length; regarding claim 24, wherein when the packet cannot fit into the superpacket, remaining available region of the superpacket holds the portion of the packet that fits into the superpacket, and a remaining portion of the packet is placed in at least one other superpacket.

Kasslin et al. discloses a communication system comprising the following features: regarding claim 1, wherein when said at least one packet (Fig. 8, FR frame) cannot fit the superpacket (Fig. 8, DAB packet), the forming means places a portion of the packet (Fig. 8, FR frame) into the superpacket (Fig. 8, DAB packet) and another portion of the packet (Fig. 8, FR frame) into another superpacket (Fig. 8, DAB packet); regarding claim 7, wherein when said at least one packet (Fig. 8, FR frame) cannot fit the superpacket (Fig. 8, DAB packet), the forming means places a portion of the packet (Fig. 8, FR frame) into the superpacket (Fig. 8, DAB packet) and another portion of the packet (Fig. 8, FR frame) into another superpacket (Fig. 8, DAB packet); regarding claim 18, wherein when the packet (Fig. 8, FR frame) cannot fit the superpacket (Fig. 8, DAB packet), the forming means places a portion of the packet (Fig. 8, FR frame) into the superpacket (Fig. 8, DAB packet) and another portion of the packet (Fig. 8, FR frame) into another superpacket (Fig. 8, DAB packet); regarding claim 23, wherein said

superpacket (Fig. 8, DAB packet) is assembled from a plurality of packets and said plurality of packets are of variable length; regarding claim 24, wherein when the packet (Fig. 8, FR frame) cannot fit into the superpacket (Fig. 8, DAB packet), remaining available region of the superpacket (Fig. 8, DAB packet) holds the portion of the packet (Fig. 8, FR frame) that fits into the superpacket (Fig. 8, DAB packet), and a remaining portion of the packet (Fig. 8, FR frame) is placed in at least one other superpacket (Fig. 8, DAB packet). See column 7, lines 58 to column 8, lines 42. It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Vargo et al., by using the features, as taught by Kasslin et al., in order to provide an efficient communication system by offering user with unidirectional services of variable length packet networks. See column 8, lines 30-42.

5. Claims 4, 10, 11, 13, 14, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vargo et al. (US 6,477,164) in view of Kasslin et al. (US 6,075,789) as applied to claims 1, 2, 7-9, 12, 23, 24 above, and further in view of Miller et al. (US 6,247,058).

Vargo et al. discloses the claimed limitations above. Vargo et al. does not disclose the following features: regarding claim 4, causing the destination packet transfer apparatus to detect for each transmission-source packet transfer apparatus that the packet is not reassembled for a second time-out time, and if a superpacket is stored in association with the transmission-source packet transfer apparatus without reassembly for the second time-out time, causing the destination packet transfer apparatus to discard the superpacket; regarding claim 11, wherein the first time-out time is determined on the basis of a predetermined allowable network delay time for each traffic on the network; regarding claim 13, wherein the reassembler means comprises, for each queue on the second storage means, second time count means for starting to count time

every time the packet is reassembled and for detecting an elapse of a second time-out from the time count, and wherein when the elapse of the second time-out time is detected, the reassembler means discards the superpacket form in the queue; regarding claim 14, wherein the second time-out time is determined on the basis of a predetermined minimum band or maximum allowable value of at least one of a network delay for each traffic on the network, delay distribution time in the network, and predetermined protection time; regarding claim 25, wherein the superpacket is filled up so that no available region is left unless a time-out occurs forcing the transmission-source apparatus to transmit the superpacket without being filled up with data stored in said at least one packet.

Miller et al. discloses an apparatus for processing network packets comprising the following features: regarding claim 4, causing the destination packet transfer apparatus to detect for each transmission-source packet transfer apparatus that the packet is not reassembled for a second time-out time (Fig. 9, 192), and if a superpacket is stored in association with the transmission-source packet transfer apparatus without reassembly for the second time-out time, causing the destination packet transfer apparatus to discard (Fig. 9, 200) the superpacket (column 11, line 65 to column 12, line 15); regarding claim 11, wherein the first time-out time is determined on the basis of a predetermined allowable network delay time for each traffic on the network (column 6, line 59-64); regarding claim 13, wherein the reassembler means comprises, for each queue on the second storage means, second time count means for starting to count time every time the packet is reassembled and for detecting an elapse of a second time-out from the time count, and wherein when the elapse of the second time-out time is detected, the reassembler means discards the superpacket form in the queue (Fig. 9); regarding claim 14, wherein the

second time-out time is determined on the basis of a predetermined minimum band or maximum allowable value (column 11, line 65 to column 12, line 15) of at least one of a network delay for each traffic on the network, delay distribution time (column 6, line 59-64) in the network, and predetermined protection time; regarding claim 25, wherein the superpacket is filled up so that no available region is left unless a time-out occurs forcing the transmission-source apparatus to transmit the superpacket without being filled up with data stored in said at least one packet (column 11, line 65 to column 12, line 15). It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Vargo et al., by using the features, as taught by Miller et al., in order to provide a reliable communication by reducing network congestion and conserving network bandwidth. See Miller et al., column 4, lines 35-65.

### *Allowable Subject Matter*

6. Claim 16 is allowed.

### *Conclusion*

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nakano et al. (US 6,574,226) discloses a data transmitting method.

Nishino et al. (US 5,375,121) discloses an ATM cell assembling method.

Takahashi et al. (US 4,903,122) discloses a message transfer system.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kwang B. Yao whose telephone number is 571-272-3182. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi H Pham can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KWANG BIN YAO
PRIMARY EXAMINER

Kwang B. Yao
February 11, 2005